

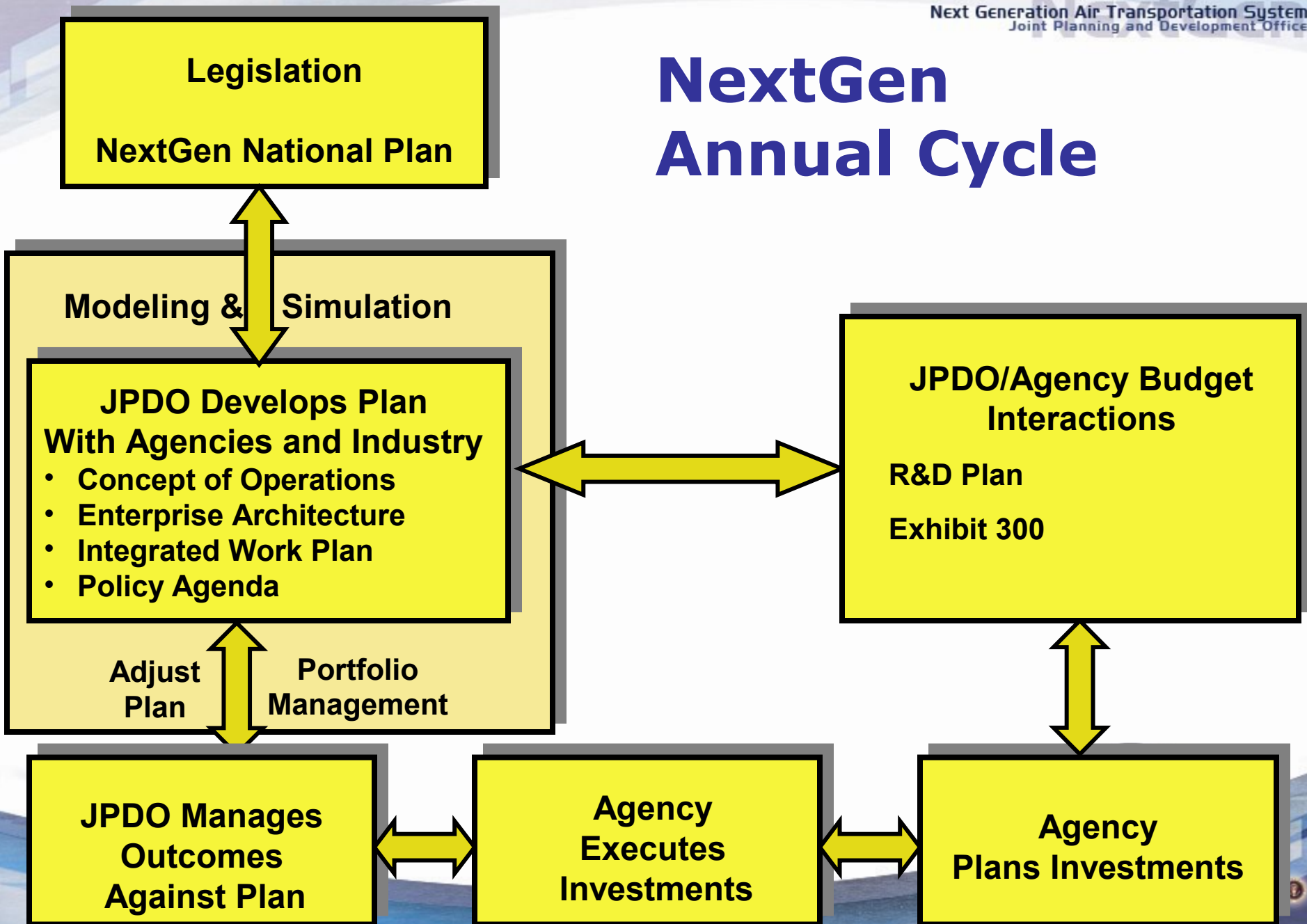
Enterprise Architecture and Engineering Division Products and Status

Prepared for the
JPDO All Hands Meeting

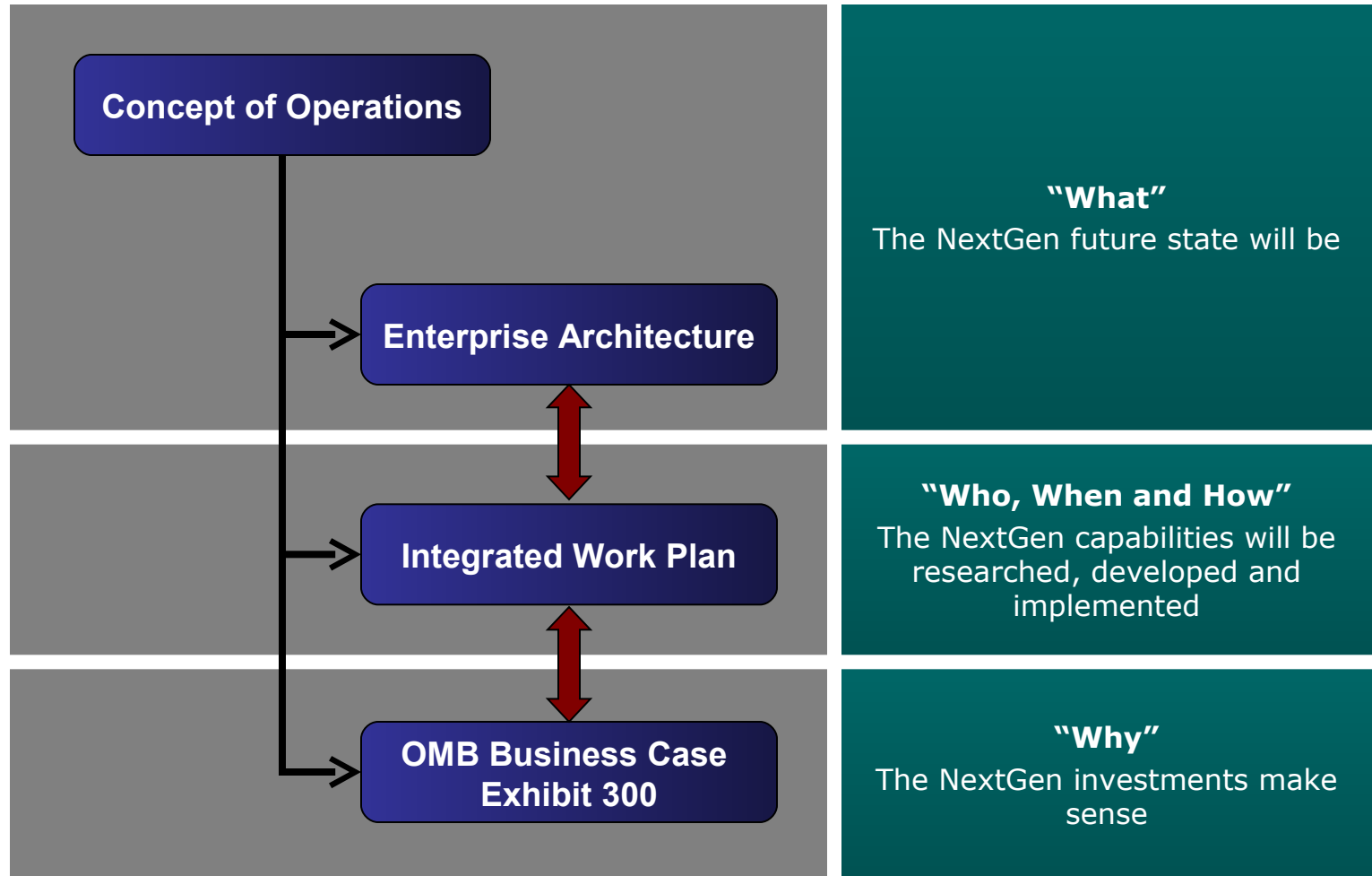
Dr. Edgar G. Waggoner
Director, Enterprise Architecture and Engineering
July 27, 2007



NextGen Annual Cycle



Hierarchy of Products



Concept of Operations Purpose

- **To describe and communicate the JPDO view of how the next-generation system is envisioned to operate in 2025**
 - **Focus on significant changes from key user perspectives**
 - **Drive research and implementation activities and non-material changes needed to achieve the vision**
 - **Represent and relate to the Enterprise Architecture as a key transformation management mechanism (change and investment)**

The ConOps provides a baseline to initiate a dialogue with the stakeholder community in order to prioritize and synchronize investments

Concept of Operations

- Received and adjudicated almost 700 comments on ConOps v1.2
- Total of 4500 comments on all versions of the ConOps
 - 55% industry, 45% government
 - 38% were received on v1.1
 - 70% were accepted or accepted with change
- ConOps v2.0 published June 13



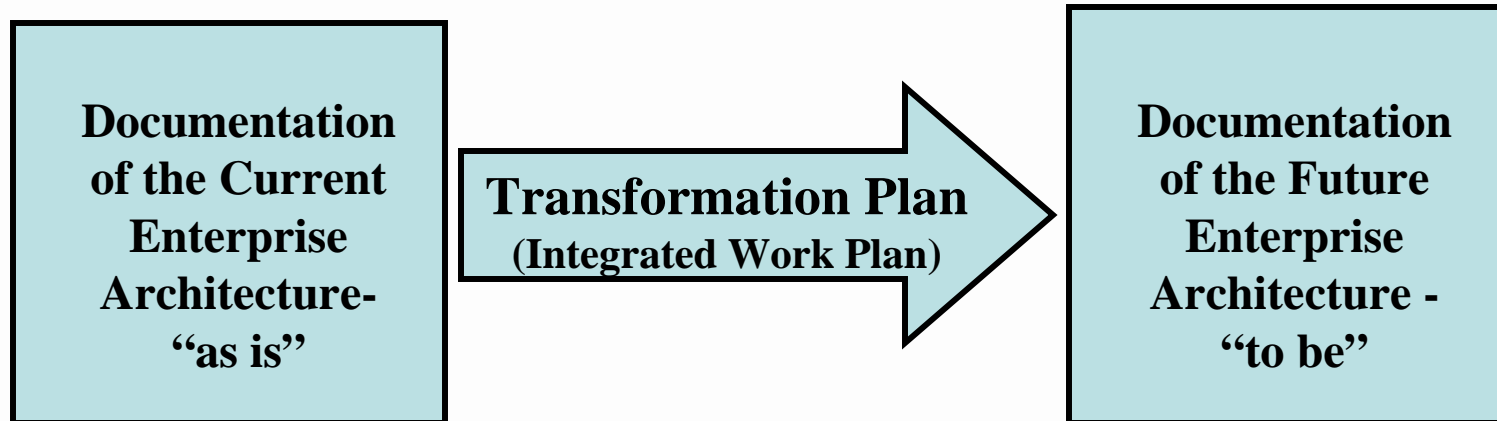
An Enterprise Level Focus on NextGen

- Transformation of the Nation's Air Transportation System requires:
 - **New policies** to create the right relationships and behaviors,
 - **Modernization** of infrastructure to reduce cost and set the stage for a new level of performance, and
 - **R&D** to create new functionality and capability that takes advantage of a modernized infrastructure
 - Engagement of **multiple entities** both public and private

Enterprise Architecture provides the holistic structure to manage the transformation of the National Air Transportation System

How will we use Enterprise Architecture?

- Enterprise Architecture as a **documentation method** provides a modeling **framework** for the enterprise



- Enterprise Architecture enables **effective management** of NextGen planning and development by:
 - Supporting **change management** at the various levels
 - Identifying **integrated decisions** leading to requirements, agency commitments, and ultimately to **synchronized investments** to deliver the NextGen
 - Tracing **key dependencies** between capabilities, policies, operations, organizations, systems, and technologies



Enterprise Architecture

- **Version 2.0 - 3 volumes - June 22nd**
 - Executive Summary and Views
 - Vol. 1 - Architectural Products with Appendix
 - Vol. 2 - EA Program Management Plan with Appendix
- **Federal Enterprise Architecture**
 - EA in FEA format was requested by OMB in FY08 Passback
 - Federal Transition Framework - April 20th
 - Reference Models - June 31st



The Integrated Work Plan

- Provides the integrated framework to achieve the NextGen vision across all major development partners.
- Builds upon the framework presented in the 2004 Integrated Plan
- Describes the transition from the current to the end state defined in the NextGen Concept of Operations and the Enterprise Architecture.
- A dynamic instrument continually refined and enhanced to reflect current priorities, budgets and programs

**IWP will be the JPDO plan to achieve
NextGen**

Integrated Work Plan Goals

- Provide a comprehensive plan for the JPDO Board and Senior Policy Committee endorsement
- Describe the major activities, dependencies and resources needed to achieve NextGen
- Provide a collaborative planning and management mechanism across all mission partners
- Allow the JPDO to review progress and ensure all critical NextGen policies and elements are researched, developed and implemented in the most efficient and effective manner
- Synchronizes individual mission partner decisions and implementation plans supporting the NextGen vision
- Provide input to other JPDO activities including strategic planning, JPDO NextGen assessments, budget formulation and modeling



IWP Outline

- Executive Summary
- Introduction
- Trajectory and Performance-Based Ops and Support
- Airport Operations and Support
- Weather Information Services
- Safety Management
- Layered Adaptive Security
- Environmental Management Framework
- Net-Centric Infrastructure Services
- Positioning, Navigation and Timing Services
- Surveillance Services



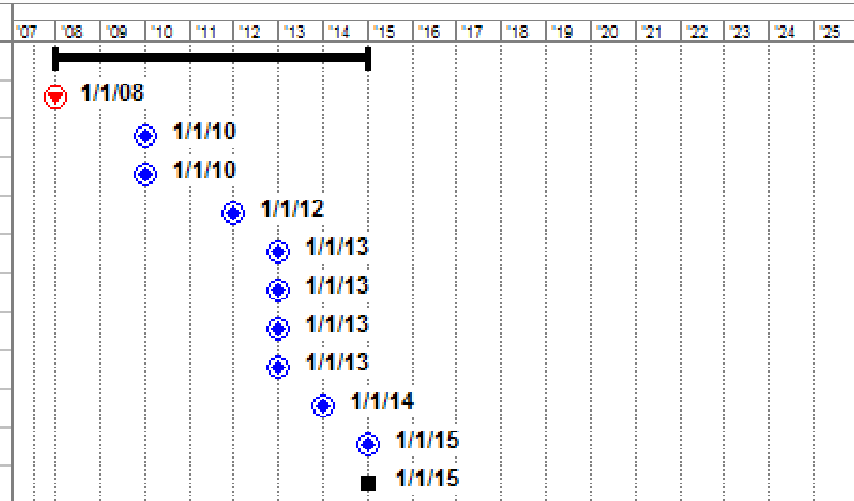
Sample OI Roadmap

ID	Task Name	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25
	Trajectory Management - En Route and Multi-Domain																			
OI-0304	Improved Collaborative Oceanic Routing																			
OI-0352	Automated Clearance Delivery and Frequency Changes																			
OI-0305	Traffic Flow Management Alternatives Analysis																			
OI-0355	Enroute Airborne Merging and Spacing																			
OI-0357	Trajectory-Based Management - Level 1 Route and Trajectory Digital Exchange																			
OI-0358	Trajectory-Based Management - Level 2 Trajectory Management Decision Support																			
OI-0360	Trajectory-Based Management - Level 3 Automation-Assisted Trajectory Negotiation																			
OI-0369	Trajectory-Based Management - Level 4 Automated Trajectory/Separation Management																			
OI-0370	Trajectory-Based Management - Level 5 Full Gate-to-Gate																			



Sample Detailed OI with Enabler Dependencies

ID	Task Name	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25
OI-0355	Enroute Airborne Merging and Spacing																			
	Key Decision/R&D/Investment/Policy Place Holder																			
EN-1023	Cooperative Surveillance - ADS-B Out Level 1																			
EN-1400	Cooperative Surveillance - ADS-B IN/TIS-B/FIS-B Level 1																			
EN-0016	Separation/Trajectory Management Detail Operational Concept																			
EN-0031	Avionics - Airborne Merging and Spacing																			
EN-0035	Separation Management Decision Support - Level 1																			
EN-0015	Air - Ground Data Exchange - Strategic Trajectory Requests																			
EN-2010	Net-enabled Weather Information - Level 1 Initial Cube/Prob Forecast																			
EN-0013	Air - Ground Data Exchange - 3D Trajectory																			
EN-0111	Air - Ground Data Exchange - ATM Data - Level 2																			
	Target IOC Date																			

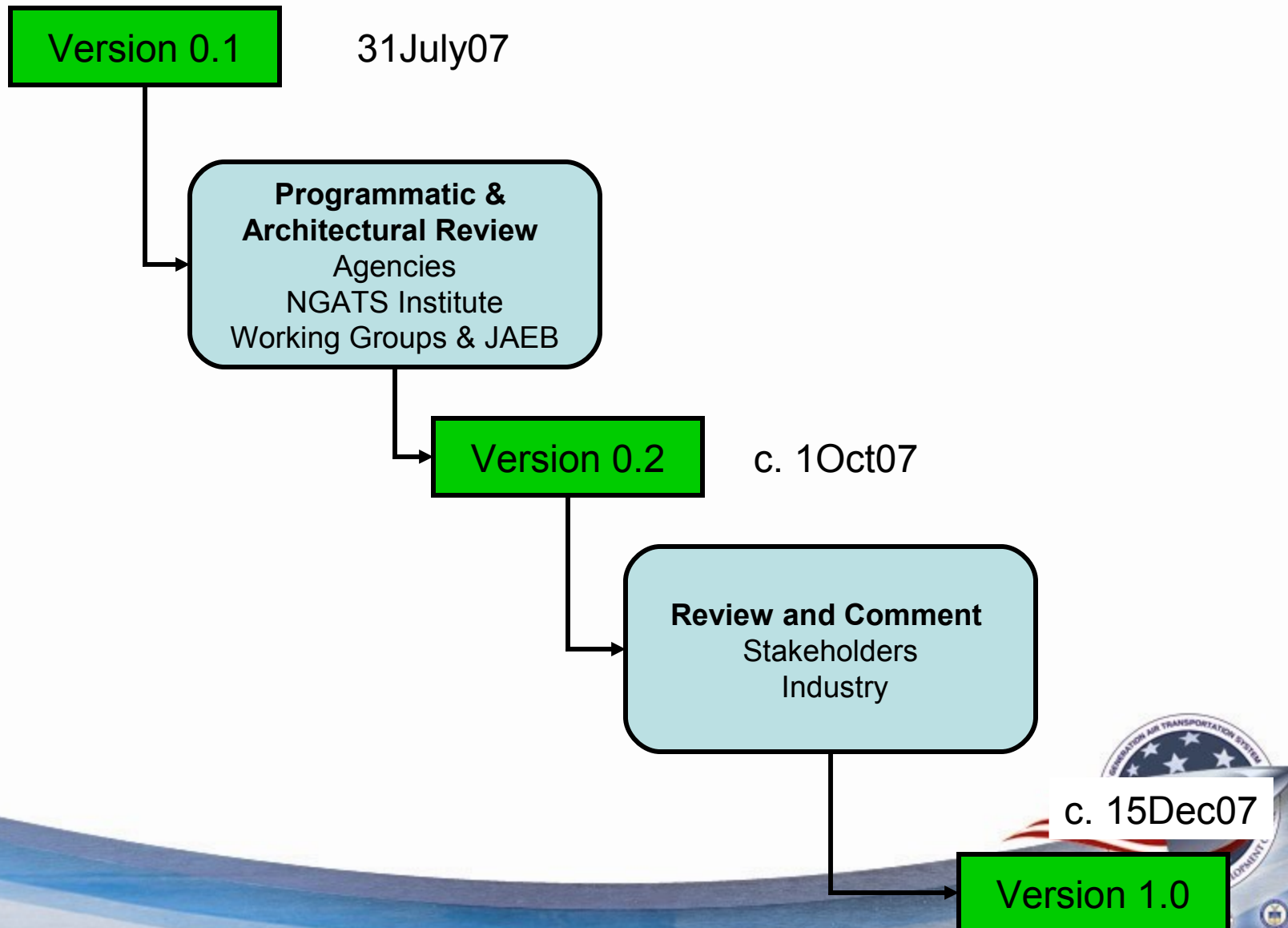


Preface and Caveats

- Draft Preface states:
 - The document has not been fully vetted and was developed with limited industry participation
 - Requires :
 - Analyses of risks, costs and benefits
 - Selection of technical alternatives
 - Full alignment with current and potentially new programs
 - Allocation and prioritization of available resources
 - Subsequent versions of the IWP will be improved by subsequent vetting with NextGen stakeholders.

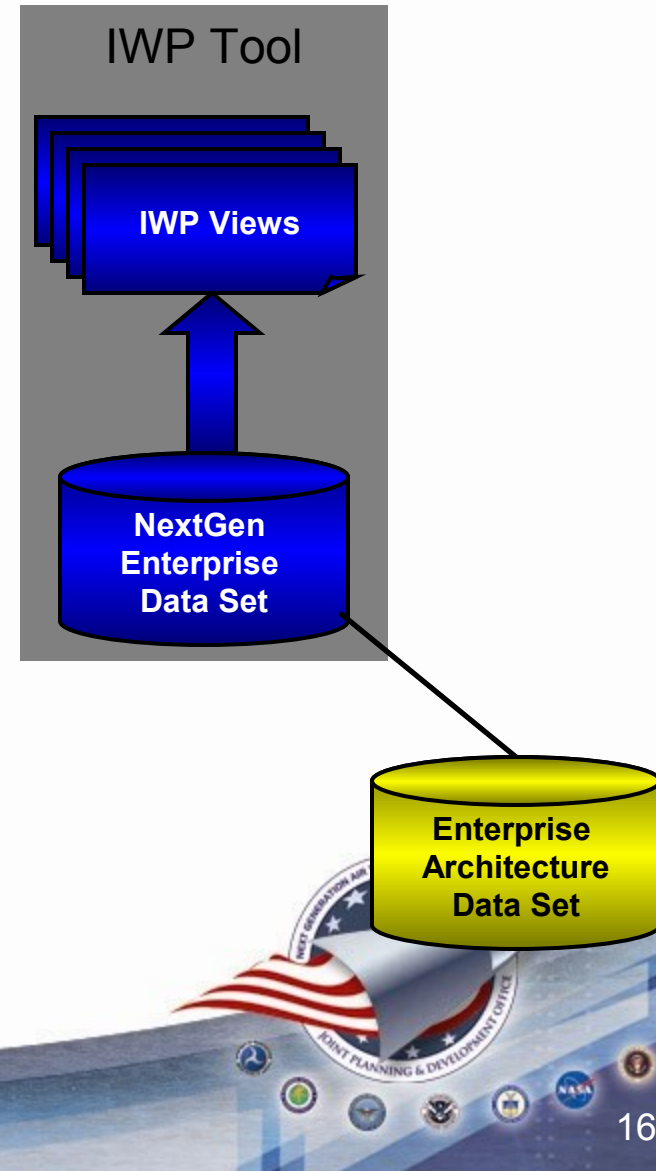


IWP Evolution and Review Process



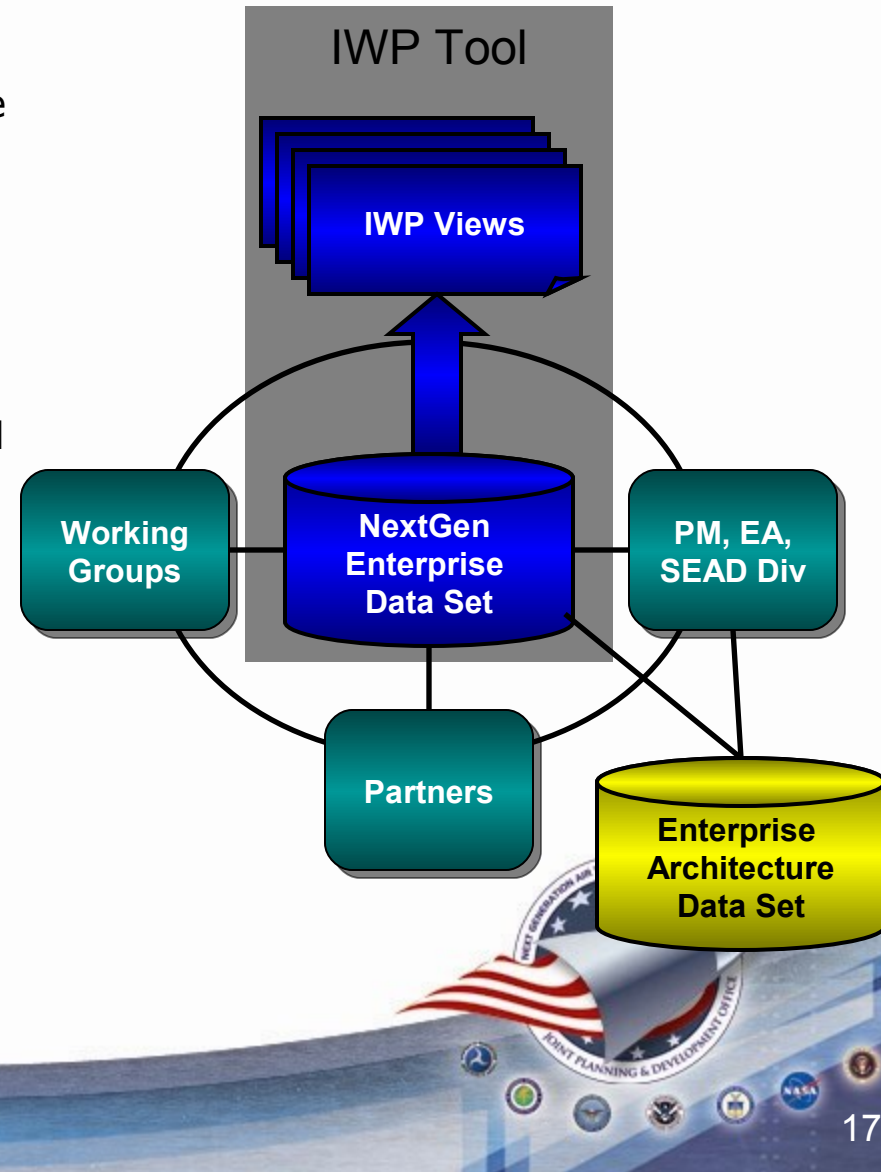
IWP Components

- A data set of information that describes the elements of the Integrated Work Plan
- The NextGen Enterprise Data Set (NED) repository that stores and supports this information
- The IWP views produced from this repository and the physical document produced to describe the overall Integrated Work Plan



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Initial Lessons Learned

- Don't let the boss make promises to Chairman Costello without a thorough vetting
 - Almost an un-realizable schedule
 - Very directive and task oriented
 - Minimal vetting
 - Little margin for working things as a team



EAED Products Summary

- The ConOps provides a vision of NextGen in prose.
- The Enterprise Architecture documents NextGen in structures that are accepted and used by Federal agencies.
- The IWP provides a comprehensive dataset that describes the transformational path to NextGen.

